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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,897	09/18/2003	Peter J. Hopper	NSC1P282/P05730	6996
22434	7590	07/13/2005	EXAMINER	
BEYER WEAVER & THOMAS LLP			ROSE, KIESHA L	
P.O. BOX 70250			ART UNIT	
OAKLAND, CA 94612-0250			PAPER NUMBER	
			2822	
DATE MAILED: 07/13/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/665,897	<b>Applicant(s)</b> HOPPER ET AL.	
	<b>Examiner</b> Kiesha L. Rose	<b>Art Unit</b> 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 4/14/05.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

This Office Action is in response to the request for reconsideration filed 14 April 2005.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7 and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin (U.S. Patent 6,483,147).

Lin discloses a silicon-on-insulator device (Fig. 8) that contains an active semiconductor layer (32), a MOS transistor (42) or other forms of transistors formed in the active silicon layer, a bulk silicon layer (12) having a first surface and second surface, an oxide layer (34) formed between the active silicon layer and first surface of the bulk silicon layer, a heat sink (38) formed in the bulk silicon layer and configured to sink heat sourced through the oxide layer to the second surface of the bulk silicon layer, where the heat sink is a thermally conductive metal material (tungsten-titanium) provided in a plug and is substantially the same size as the thickness of the bulk silicon

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layer and has a circumference ranging from 1 to 50000 microns and where the silicon-on-insulator is formed on a semiconductor wafer or die.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Mitani et al. (U.S. Publication 2003/0057491).

Lin discloses all the limitations except for an isolation region and the orientation of the semiconductor material. Whereas Mitani discloses a semiconductor device (Fig. 3) that contains a bulk silicon layer (1a), an oxide layer (2a), a active silicon layer (3a), a transistor and isolation regions (4) formed around the transistor and contacting the oxide layer, where the bulk silicon layer, oxide layer and active silicon layer have an orientation of 100,111 or 110). The isolation regions are formed around the transistors to act as element isolations to separate other transistors or elements from each other. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Lin by incorporating an isolation region to act as a element isolations to separate other transistors or elements from each other as taught by Mitani. In regards to the orientation, it is well known in the art to have

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semiconductor materials formed of orientations 110,111 or 110 as disclosed in the Mitani reference.

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin.

Lin discloses the claimed invention except for a plurality of transistors and heat sinks. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a plurality of transistors and heat sinks, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. (St. Regis Paper Co. v. Bemis Co., 193 USPQ 8 1977) In addition the Lin reference discloses that there is at least one heat sink or transistor so that discloses a plurality of transistors and heat sink. (Column 2, lines 15-16)

### ***Response to Arguments***

Applicant's arguments filed 14 April 2005 have been fully considered but they are not persuasive. Applicant argues that the Lin reference does not disclose a transistor formed in the active silicon layer. This is erroneous since the transistor is formed in the active silicon layer. The transistor consist of the gate, channel and source and drain, the source and drain are formed in the active silicon layer therefore the transistor is formed in the active silicon layer. In regards to the reference not disclosing DAG a thermally conductive paste, the Lin reference discloses a thermally conductive paste and since DAG is disclosed as a thermally conductive paste then the Lin reference discloses the limitation. Therefore the rejection stands.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 571-272-1844. The examiner can normally be reached on M-F 8:30-6:00 off 2nd Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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